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Transmitted herewith for filing under 37 CFR 1.53(b) is the

- ☒ patent application of
☐ continuation patent application of
☐ divisional patent application of
☐ continuation-in-part patent application of

Inventor(s)/Applicant Identifier: Sekaran Nanja

Assistant Commissioner for Patents
Washington, D.C. 20231

By: Sherry Barton

For: SYSTEM FOR CONFIGURATION OF DYNAMIC COMPUTING ENVIRONMENTS USING A VISUAL INTERFACE

☒ This application claims priority from each of the following Application Nos./filing dates:

60/228,105, filed August 24, 2000

the disclosure(s) of which is (are) incorporated by reference.

☐ Please amend this application by adding the following before the first sentence: "This application is a ☐ continuation ☐ continuation-in-part of and claims the benefit of U.S. Provisional Application No. 60/_____, filed _____, the disclosure of which is incorporated by reference."

Enclosed are:

- ☒ 19 page(s) of specification
☒ 3 page(s) of claims
☒ 1 page of Abstract
☒ 2 sheet(s) of ☐ formal ☒ informal drawing(s).
☐ An assignment of the invention to _____
☒ A ☐ signed ☒ unsigned Declaration & Power of Attorney
☐ A ☐ signed ☐ unsigned Declaration.
☐ A Power of Attorney.
☐ A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27 ☐ is enclosed ☐ was filed in the prior application and small entity status is still proper and desired.
☐ A certified copy of a _____ application.
☐ Information Disclosure Statement under 37 CFR 1.97.
☐ A petition to extend time to respond in the parent application.
☐ Notification of change of ☐ power of attorney ☐ correspondence address filed in prior application.

In view of the Unsigned Declaration as filed with this application and pursuant to 37 CFR §1.53(f),
Applicant requests deferral of the filing fee until submission of the Missing Parts of Application.

DO NOT CHARGE THE FILING FEE AT THIS TIME.

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PATENT APPLICATION
SYSTEM FOR CONFIGURATION OF DYNAMIC COMPUTING
ENVIRONMENTS
USING A VISUAL INTERFACE

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005760-06629960

SYSTEM FOR CONFIGURATION OF DYNAMIC COMPUTING ENVIRONMENTS USING A VISUAL INTERFACE

CROSS-REFERENCES TO RELATED APPLICATIONS

5 This application claims priority from U.S. Provisional Application, entitled "Dynamic
Computing Environment Using Allocateable Resources" Serial No. 60/228105 and filed
on August 24, 2000. This application is also related patent application Serial No. ____
(TBD), entitled User Interface for Dynamic Computing Environment Using Allocateable
Resources, filed September 15, 2000. Both applications and their disclosures are
10 incorporated herein by reference for all purposes.

BACKGROUND OF THE INVENTION

The present invention relates in general to digital processing, and more
specifically to an interactive system for allowing allocation of resources such as digital
15 processors, networks and software to create a software configured, networked
arrangement of processors and processes.

Today, computers are increasingly being used in almost every area of
commerce, education, entertainment and productivity. With the growing popularity of the
Internet, corporate and campus intranets, home networking and other networks, the trend
20 is to use multiple computers, or processing platforms, to perform tasks and provide
services. The networked processors approach is in contrast to traditional approaches of
running a single application as a stand-alone application on a single computer.

One approach to networked processing is a "client-server" model whereby
a server computer on the Internet is used to transfer information to a client computer.
25 Typically, the client computer is located at an end user's location, such as a personal
computer in a user's home. This allows large amounts of information to be stored in, and
accessed from, the server computer by many client computers. The client computers can
access the server computer simultaneously. Another approach allows a user to obtain
portions of executable programs from the server to operate an application program in
30 functional "pieces" or components, on the client computer. For example, a user can run a
word-processing program in a client-server mode where the server provides only those
portions of the word-processing software to the user's computer on an as-needed basis.

Yet another model is the application service provider (ASP) model. This
removes the application still further from the end-user and can involve more processors,

such as servers. The ASP model allows a primary server to host a client-server application, or to host any type of data-processing resource such as a database, user interface, program component, data object, etc. The application can appear to the client as being hosted by the primary server when it is actually being provided by one or more
5 other servers. The other servers can provide the application, or components, by having the client directly access the other server, or having the client access the other server through the primary server.

Still other models are possible. Any arbitrary arrangement of processors can be used to provide a service or function to an end user, or to another device such as
10 another processor, consumer electronic device, etc. Examples of such systems are groups of computers used to perform a large mathematical task, such as rendering frames of a video sequence or performing a simulation. Systems that use many processors to exchange information, such as email systems, multicasting programs, voice-over-IP communications, etc., can potentially require hundreds, or even thousands or more,
15 networked processors.

Software is necessary to operate each of these models. Each of the systems described above will likely use multiple software processes on each processing platform. Most likely, the software processes are designed by different software manufacturers. Although there are standard specifications to design compatible software,
20 such software is still designed largely independently of other manufacturers' software. For example, a user may be running an operating system and web browser designed by different companies. Additional processes may be concurrently executing on the user's computer.

Thus, many independently designed hardware devices and software
25 processes must be coordinated in order for the overall networked system to operate correctly and efficiently. This complexity is multiplied by the number of users that the system is designed to support. For example, where the system is an Internet system it is common for the user base to be in the hundreds of thousands, or millions. There may be hundreds or thousands (or more) simultaneous users operating client systems that require
30 tens, or even hundreds, of servers for adequate bandwidth. Different servers in the networked system may perform different functions such as web page serving, database maintenance, caching, etc.

This complexity further manifests itself in another aspect. In the past, software applications used to be monolithic. That is, the application was self-contained

within a box with no interaction with other applications. However, this paradigm is no longer true. With Internet and e-commerce applications, for example, a client application is configured to talk to a remotely located server application such as eBay.com®, or Amazon.com®, for example. Typically, e-commerce applications define a three-tier architecture which includes: (1) client; (2) server; and (3) database. Within this architecture, the client may be running an Intel® x86 box with a Microsoft Windows NT™ environment, the server may be running a Sun Microsystems® box running an iPlanet™ application, the database may be Sun Microsystems® box running Oracle®, for example. Therefore, this three-tiered architecture increases the complexity and cost of many software applications.

In one aspect, the complexity of today's computing environments increases computing costs, and extends the time for a new product to reach the market. This also increases the cost of the logistics of running the computing infrastructure for today's organizations: the cost and time involved in procuring, installing, provisioning and maintaining the infrastructure increases non-linearly with the increase in complexity of the infrastructure. Furthermore, the complexity also increases the need for continual evaluation of competing technologies from different vendors to optimize the running expenditure for the infrastructure. On the other hand, there is no easy access in today's market for comprehensive evaluation of an integrated infrastructure without actually building the infrastructure.

Thus, it is desirable to provide a highly available and easily usable system for overcoming the aforementioned problems and which provides advantages over the prior art.

SUMMARY OF THE INVENTION

The present invention discloses a user interface for creating a dynamic computing environment using allocable resources. The interface enables the fast, efficient selection and configuration of processing resources for the computing environment. In a first embodiment, a primary company, Design2Deploy, Inc.® provides the ability for a customer or system architect to design a system by allocating resources and specifying how the resources are to be used. The system architect may create a computing environment from a remotely accessible user interface such as a web page on

the Internet. Thus, the system architect can create, modify and operate the environment from anywhere in the world.

One embodiment of the present invention provides a method for allocating computing resources, the method using a computer coupled to a display device and to a user input device. The method includes, displaying a list of computing resources on the display device; accepting signals from the user input device to indicate the configuration of at least a portion of the processing resources; and configuring the selected computing resource.

A further embodiment of the present invention discloses a system for providing configurable resources to achieve a computing environment. The system includes a configurable communication link; a plurality of computing devices coupled to the communication link; and a plurality of software programs coupled to the computing devices.

A further embodiment of the present invention discloses a method for creating a computing environment by using a computer user interface, the computer user interface coupled to a display screen and to an input device for generating signals in response to interactions of a user. The method includes, accepting a first signal from the input device which enables the user to select a configuration of a single computing device for use in the computing environment; accepting a second signal from the input device which enables the user to activate a selected device to run in the computing environment; accepting further signals for restarting the device or for shutting the device down. Advantageously, the present invention facilitates the creation of a computing environment on-demand by the customer, and since the computing environment, in turn, can be coupled over networks, including the Internet, this approach eliminates the logistics cost involved in the creation and use of a computing environment.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram of a system for configuration of a computing environment and allocation of resources according to the present invention.

Fig. 2 is a flow chart for describing the basic steps performed by a server system to allocate resources in response to user interaction according to the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

Detailed descriptions of the embodiments are provided herein. It is to be understood, however, that the present invention may be embodied in various forms. Therefore, specific details disclosed herein are not to be interpreted as limiting, but rather
5 as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present invention in virtually any appropriately detailed system, structure or manner.

The present invention allows fast, efficient selection and configuration of processing networks. The processing network is referred to as a system including
10 “resources.” A system resource is any hardware, software or communication components in the system. For example, discrete hardware devices include processing platforms such as computers or processors, mobile/laptop computers, embedded computing devices, hand-held computers, personal digital assistants, point-of-sale terminals, smart-card devices, storage devices, data transmission and routing hardware
15 etc., without limitation. Software, or any other form of instruction, is executed by processors in the system and is a type of resource. Finally, communication resources are also part of the system such as a digital network’s hardware, the network configuration and topology, and network control as provided by software or hardware.

The resources are fully selectable and allocable by a system architect. In a
20 preferred embodiment, a primary company, Design2Deploy, Inc.® provides the ability for a system architect to design a system by allocating resources and specifying how the resources are to be used. The system architect can be an individual, corporate entity, etc. The system is referred to as an “environment” and the primary company is referred to as an Environment Service Provider (ESP), while the system architect is referred to as the
25 “customer.” The primary company obtains revenue for providing the resources and the tools to easily select, allocate, configure and run the environment.

Note that the preferred embodiment allows such fast allocation and configuration of resources that environments can be created from a pool of resources within minutes, or even seconds, (virtually) destroyed, and reallocated for creating
30 different environments from the same pool of resources This allows “time sharing” of overall resources so that a first environment can be “alive” for a daily two-hour slot, followed by second, third and fourth environments being instantly created for the next four hours for three different customers, and so on. This also provides an efficient system for provisioning “crash-and-burn” systems which can be used in different software

development lifecycle scenarios including testing, rapid beta deployment, etc. This also provides a cost-effective way for comparative evaluation of technologies.

A preferred embodiment allows customers to create a computing environment from a remotely accessible user interface such as a web page on the Internet.

5 Thus, the customer can create, modify and operate the environment from anywhere in the world. Since the resources, in turn, can be coupled over networks, including the Internet, this approach eliminates the cost of shipping hardware and software. Designers, programmers, testers or other personnel using an environment can, similarly, be located anywhere in the world so that labor costs can be optimized.

10 The configuration of environments is automatic. For example, a customer can request a web-site simulator using 12 web-page servers on a Microsoft® NT platform, 2 disk arrays at a specific bandwidth and storage capacity, 2 caching servers and 200 clients running Netscape Navigator™ under Microsoft Windows® 2000 using Pentium III™ processors at under 800 MHz. Such an environment is created
15 automatically and made accessible to the architect in real-time over the web. A further understanding of embodiments of the present invention will be gained with reference to the diagrams and descriptions which follow.

System Overview

20 Fig. 1 is a block diagram of system 100 for allocating processing resources according to the present invention. In Fig. 1, system 100 comprises, among other components customer/architect 101, a web-based interface 102, a computer network such as the Internet 108, configuration/access server system 103, the inventory of resources 105, the infrastructure server 104 for the maintenance of the inventory, and different
25 levels of security 106 and 107. In a first embodiment, customer 101 uses the web-based interface 102 and the Internet 108 to interact with server system 103 for the purpose of allocating resources, as described below. The server 103 on receiving the information from the customer 101 allocates resources based on the customer's requirements and the availability of resources in the inventory 105. The access level security layer 106 ensures
30 that customer 101 can access the server without any other customer being aware of the information passed between the interface 102 and the server 103. The isolation level security layer 107 ensures that the resources being used by the customer 101 are available "in isolation" i.e., no other customer or outsider knows about the configuration or the specifics of the computing environment used by customer 101.

Although not shown, one of ordinary skill in the art will realize that the “inventory” may include various machine and device types. For example, such devices may include mobile/laptop computers, embedded computing devices, hand-held computers, personal digital assistants, point-of-sale terminals and smart-card devices without limitation

It is possible to use widely varying components, or resources, than those shown in Fig. 1 to adequately implement the invention. The specific hardware and interconnections of Fig. 1 are but one example of an architecture for providing allocable resources. Although not shown, system 100 need not include Internet 108. In an exemplary embodiment, system 100 comprises a collection of one or more wired or wireless networks, which are not connected to the Internet. In a first embodiment, the present invention permits “virtual” hosting of computing environments. As used herein, the term “virtual” specifies that neither the requisite devices nor the network is physically accessible to users. Further, in accordance with this embodiment, the hosting process may be initiated or terminated by users at will.

Fig. 2 shows a flowchart of the process by which customer 101 allocates resources in a preferred embodiment of the present invention.

In Fig. 2, the flowchart is entered at step 202, when the user desires to allocate resources.

At step 204, the user selects a “login option”. It is assumed that a valid account has previously been opened for the USER1, under an account named ACCOUNT1, for example. Next, the user provides the user’s information, namely, USER1, ACCOUNT1, and a password. Configuration server 103 locates the user named USER1 under ACCOUNT1 and authenticates the user identification, account and password.

Next, if USER1 has previously configured a laboratory for ACCOUNT1, it is retrieved. Otherwise, USER1 is presented with a “laboratory configuration” page. An example of the “laboratory configuration” page is shown in the screen shots furnished below.

At step 208, the computing resources are allocated. On clicking “select a configuration” on the menu option, USER1 creates a computing resource such as an x86 machine running Linux operating system. The configuration server 103 selects the required resources from the inventory 105 and instructs the infrastructure server 104 to
5 configure this machine. At decision box 206, USER1 may configure or add as many machines, and operating systems and software as desired. If for example, USER1 wishes to configure a server for the computing environment, USER1 clicks on “select a configuration” again.

At step 210, USER1 may open a window on one of the machines which
10 were previously configured by selecting “open a terminal” menu item. In response, the access server 103 provides USER1 with access to the specific machine.

USER INTERFACE

15 In operation, customer 101 wishing to allocate resources or create a computing environment connects to a web site served up by server system 103 and provided by Design2Deploy, Inc. Server 103 serves up a number of user interfaces to configure the desired resources, as illustrated with reference to the following screen shots. In a first embodiment, the user interfaces include text-based-forms or other data-entry
20 fields, which prompts customer 101 to fill in the forms to obtain the desired information. The user interface also includes a visual configuration page showing the available options, which can be selected and added to the customer’s environment.

The screen shot for web page 1 below illustrates the contents of a user
25 interface served up on request by customer 101, the first time the customer visits the site provided by Design2Deploy, Inc.

New Account

Design2Deploy

All fields with a (*) must be filled out

Account Name (*)

Service Plan (*)

Amount of Shared Storage (*)

User ID (*)

Password (*)

Retype Password (*)

User Name

E-mail

Phone

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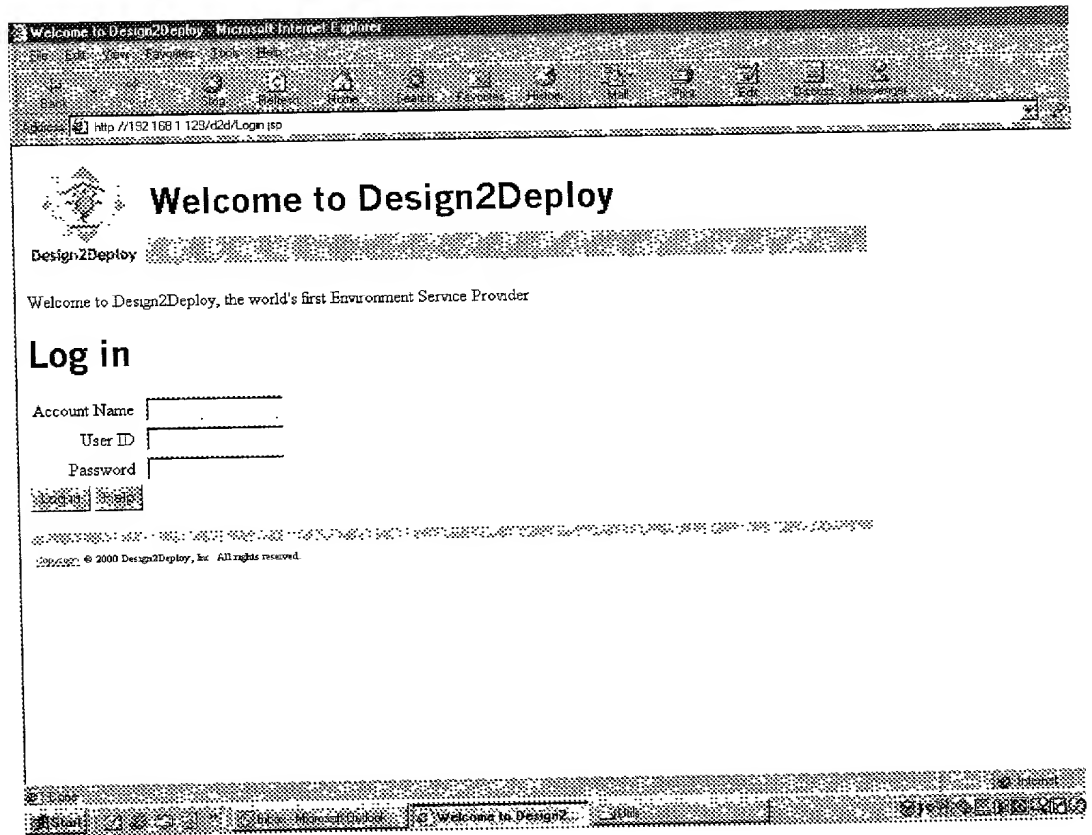
Web page 1

5

As shown, the form in Web page 1 permits customer 103 to create a new account. Client 142 must also specify billing information when creating a new account. Such information can be an account number or a credit card number, for example.

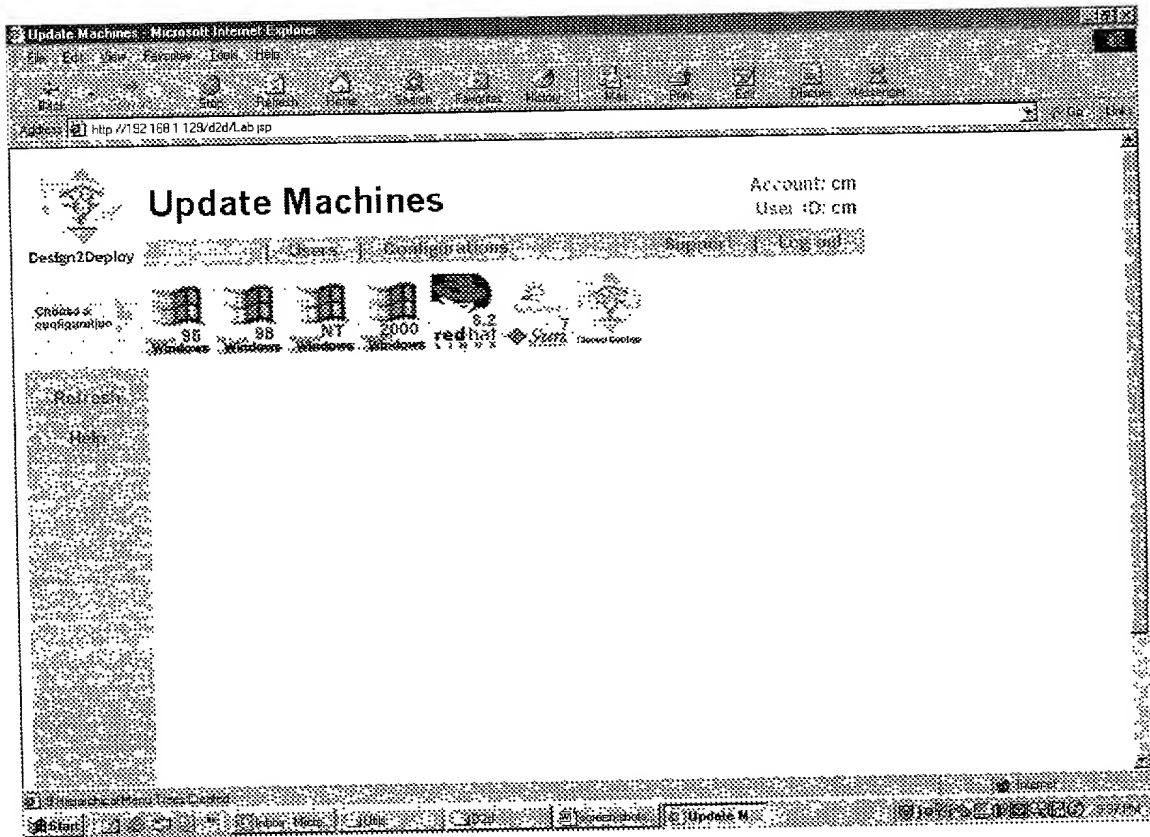
10

Once an account has been established and the credits verified, one can log into the account. In one embodiment, a multitude of users can be created within the same account, and all of these users could log into the account. The screen shot for web page 2, shown below illustrates the form to be filled for log in by a user.



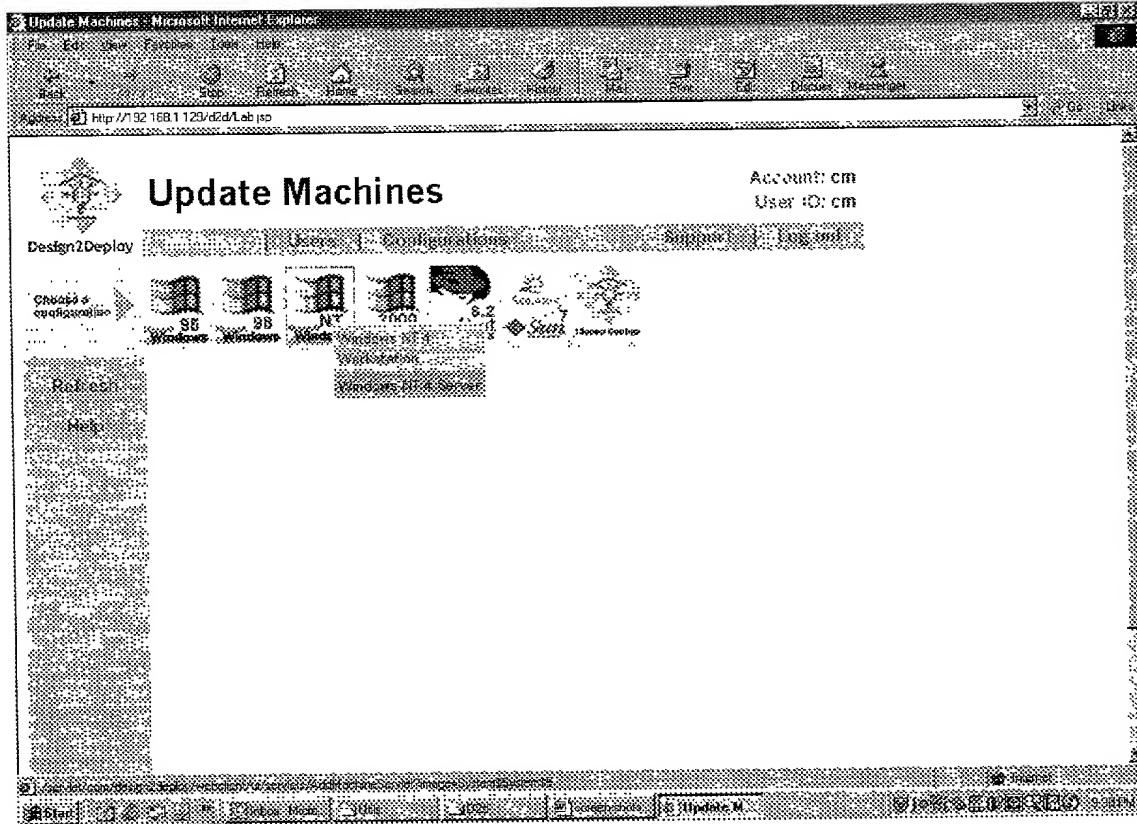
Web Page 2

- 5 Once a user logs in, a configuration page is displayed - as illustrated in web page 3 below.



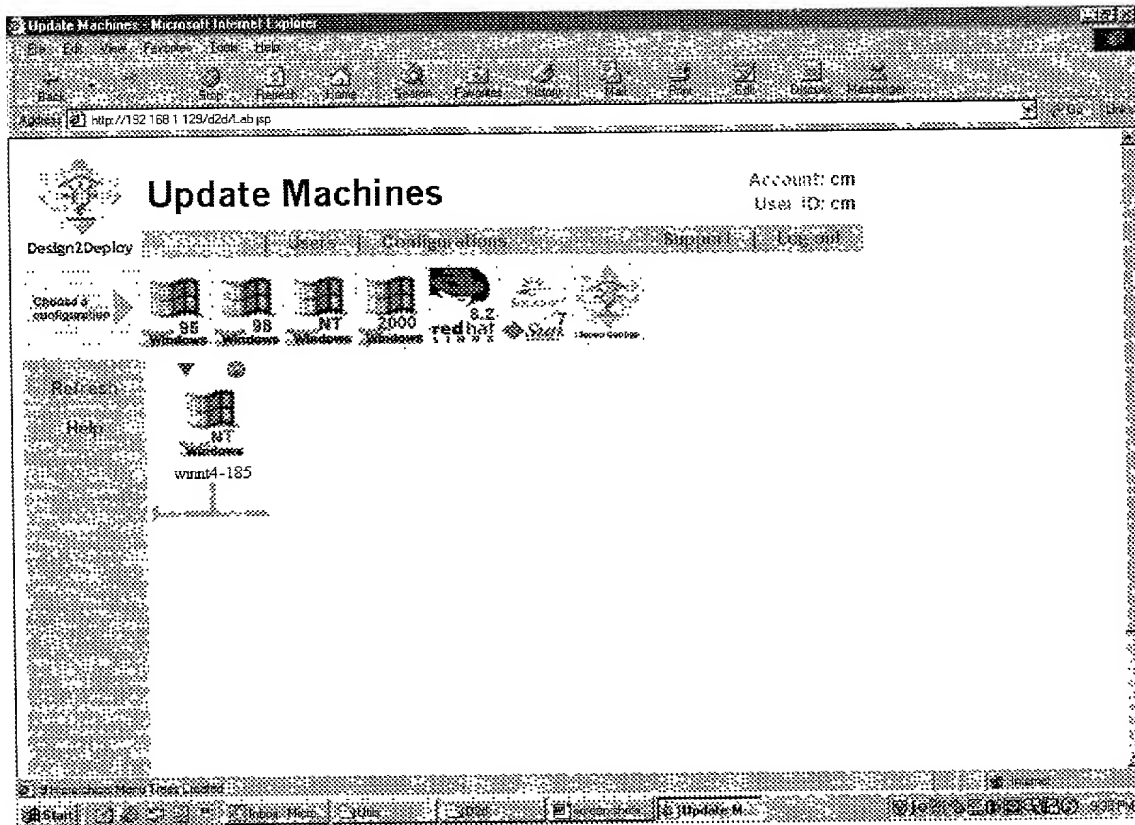
Web Page 3

- 5 Web page 3 displays a list – by default – of configurations available. The user can select one of these options by selecting the menu items as shown in the screen shot for web page 4 below. If the user is revisiting an environment that has already been configured, then the environment will also be displayed (not shown here).



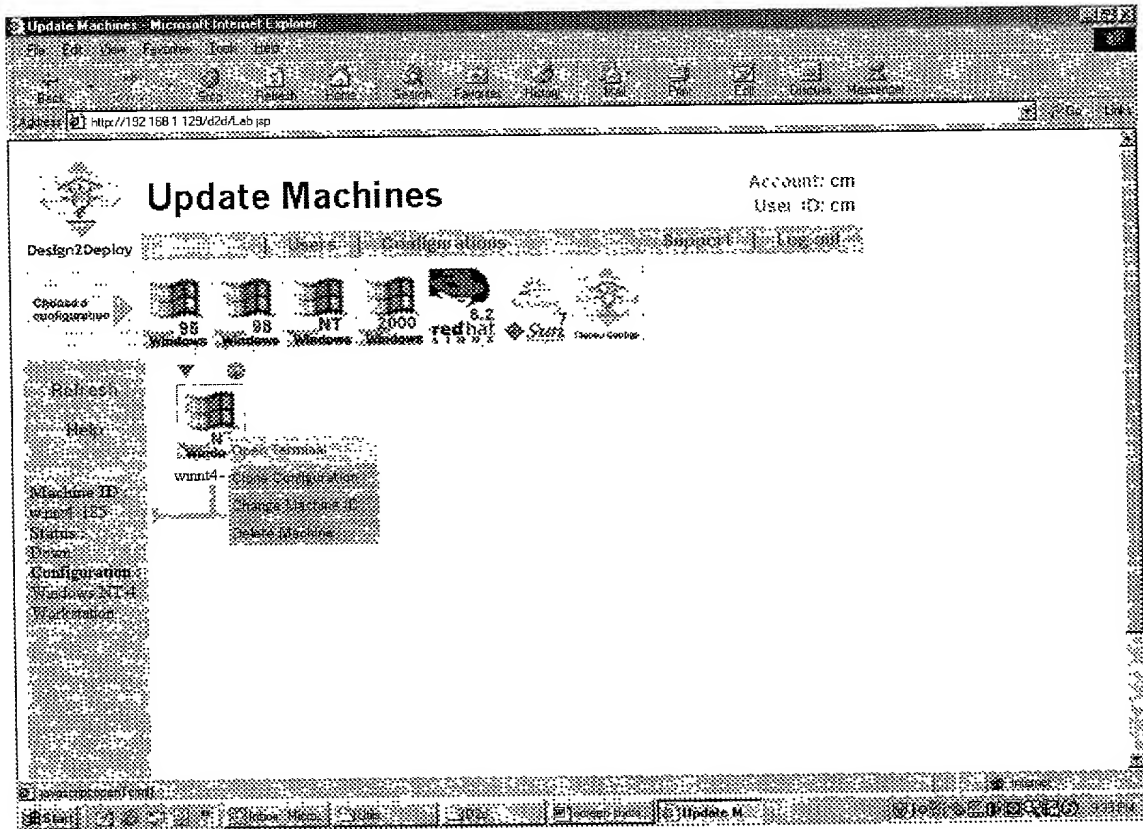
Web Page 4

- Based on the selection made by the user, the configuration server 103 allocates a
- 5 computer with the requested operating system and other application software. In another embodiment the user will be allowed to specify constraints on the hardware such as the size of the hard disk. In a further embodiment, the configurations listed will include computing devices like hand-held devices, cell-phones, point-of-sale terminals and others. Once the allocation is done by the server 103, the user interface 102, gets updated as
- 10 illustrated in the screen shot for web page 5 below.



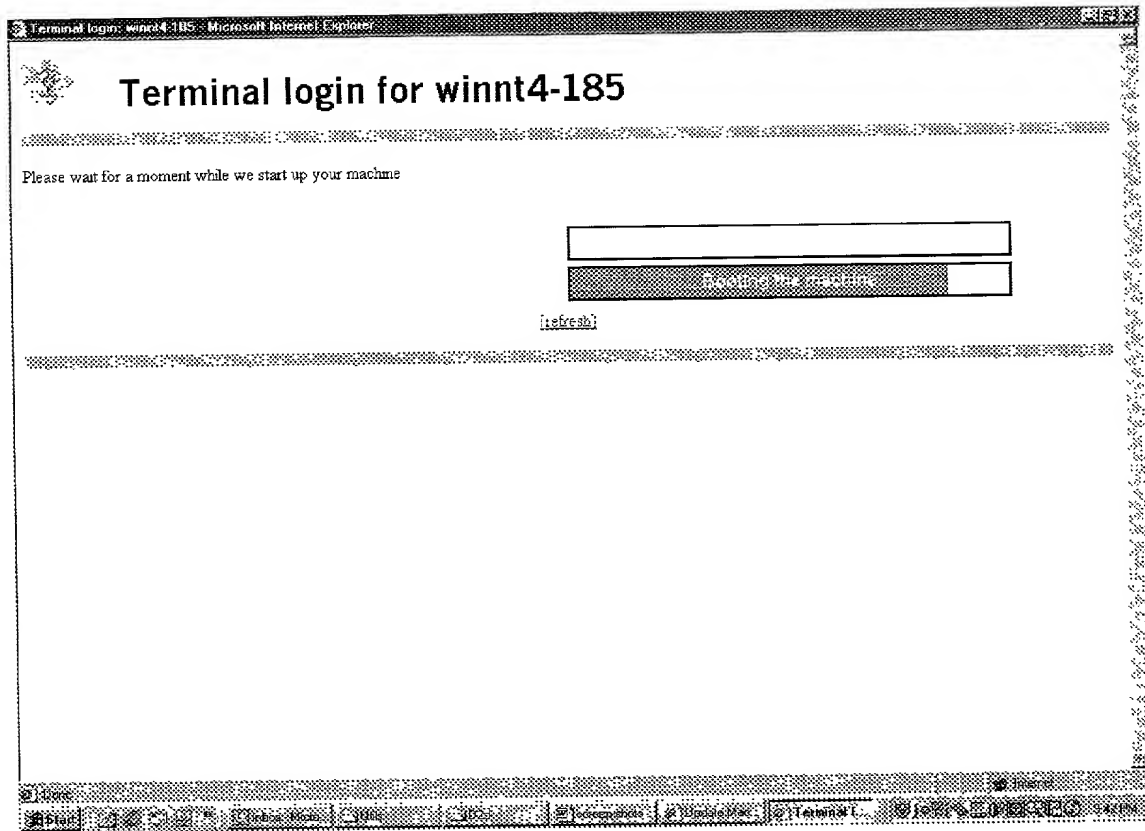
Web Page 5

- 5 Once allocated, the user can open a terminal to access the specific computing device. In one embodiment the icon representing the device – like the one named winnt4-185 in web page 5 – indicates whether the device is active or not. The red triangle pointing downward and located above the icon identified as winnt4-185 in web page 5 denotes that the device winnt4-185 is not active. The user can now select to open a
- 10 terminal to access this device as shown below in web page 6.



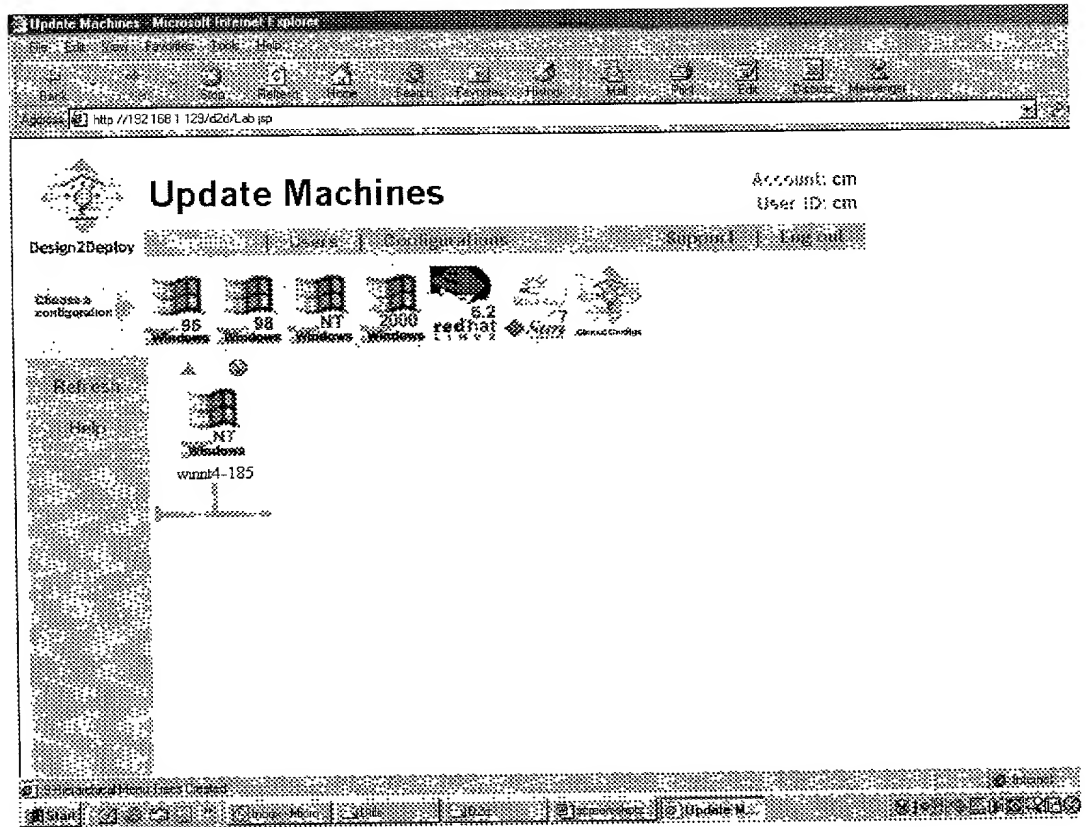
Web Page 6

- 5 When the user tries to access (by selecting open terminal as in web page 6), the configuration/access server 103 activates the machine from the inventory 105 by using the infrastructure server 104. Then a pop-window is displayed as shown in web page 6-a showing the status of the activation step.



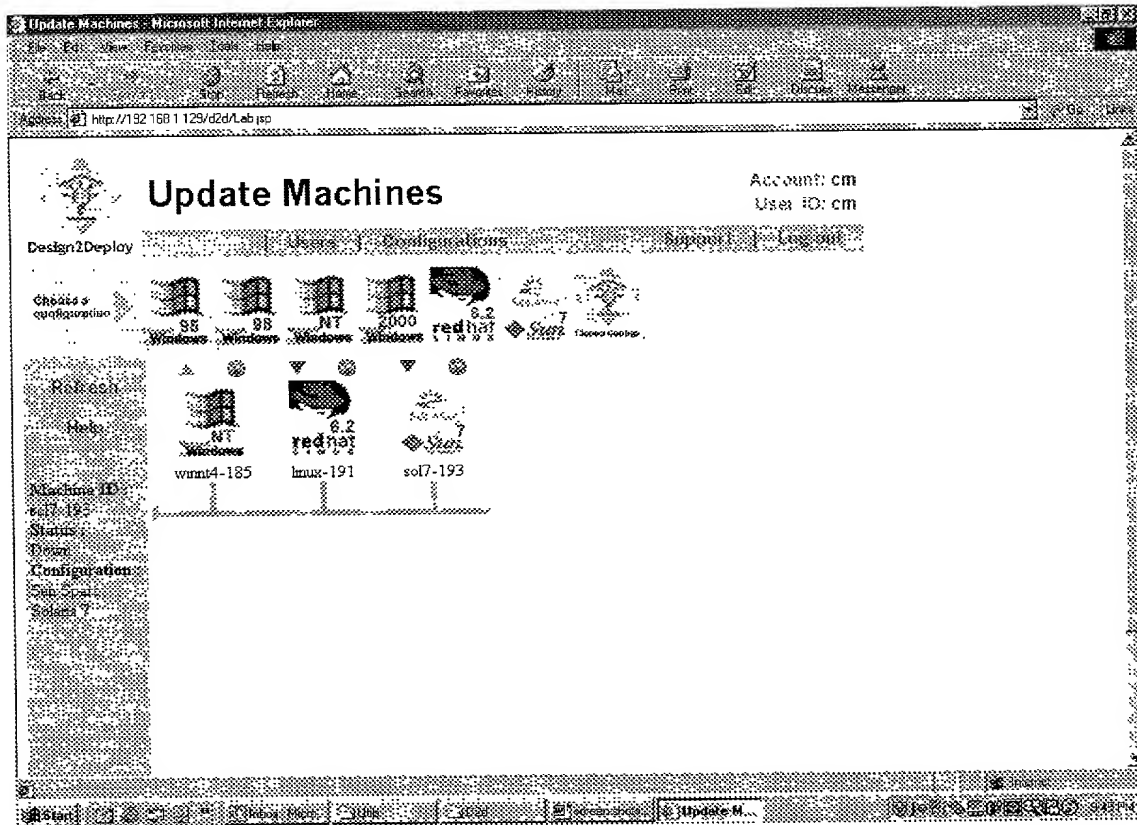
Web Page 6-a

- 5 Once the computing device has been completely activated, the status of the device is updated on the user interface 102 as shown below in web page 7.



Web Page 7

- 5 It must be observed that the only difference between web page 6 and web page 7 is that the status of the device winnt4-185 has been changed from inactive (red triangle pointing downward) to active (green triangle pointing upward). In addition, a window displaying the screen of the requested device will also pop-up as soon as the device is activated. (This window is not shown here). Once the user has access to this
- 10 device through this pop-up window, the device is under the user's complete control. The user can further repeat the previous steps in allocating a device as explained in step 206 of Fig. 2. For example, after additional steps for requests of allocations, the user interface 102 may display web page 8 shown below.



Web Page 8

5 When a user logs out the environment will be saved automatically. When the user revisits the account, the environment is displayed along with a list of configurations.

Herein lies a first advantage of the present invention. The steps illustrated above allow a user to instantaneously create a configurable, secure, and distributed
 10 computing environment. Also the present invention insures that the process outlined above can be repeated simultaneously by multitude of independent customers.

15

WHAT IS CLAIMED IS:

1 1. A method for allocating resources for creating a computing
2 environment, the method using a processor coupled to a display device and to a user input
3 device, the method comprising:
4 displaying a list of resources on the display device;
5 accepting signals from the user input device to indicate the configuration of at
6 least a portion of the resources; and
7 configuring the selected resources.

1 2. The method of claim 1, wherein the resources include hardware
2 processors

1 3. The method of claim 1, wherein the processing resources include
2 software in particular operating systems and application software.

1 4. The method of claim 3, further comprising
2 accepting first signals from the user input device to indicate a configuration to
3 be used;
4 accepting second signals from the user input device to indicate one or more
5 software components to be installed; and
6 automatically installing the software components onto the processing
7 platform.

1 5. The method of claim 4, wherein the software component is a server
2 component.

1 6. The method of claim 6, wherein the software component is a client
2 component.

1 7. A system for providing configurable resources to achieve a computing
2 environment, the system comprising
3 a configurable communication link;
4 a plurality of hardware devices coupled to the communication link; and

5 a plurality of software programs coupled to the hardware devices, the software
6 programs including operating systems, application software, and others of a similar nature.

1 8. The method of claim 7, further comprising
2 visual construction of the computing environment via a user interface, the user interface
3 coupled to a display screen and to an input device for generating signals in response to
4 interactions of a user, the method comprising:
5 accepting a first signal from the input device which enables the user to specify
6 a type of operating system for use in the computing environment;
7 accepting a second signal from the input device which enables the user to
8 specify a type of hardware for use within the computing environment;
9 accepting one or more further signals from the input device which enable the
10 user to specify one or more software to be used within the computing environment.
11

1 9. The method of claim 8 further comprising
2 accepting a signal which allows the user to specify a new device to run in the
3 computing environment, activating the new device and displaying the computing
4 environment having the active device.

1 10. The method of claim 9 wherein the displaying of a plurality of
2 configurations occurs prior to the step of accepting a first signal which enables the user to
3 specify or select a type of configuration.

4 11. The method of claim 10 wherein the devices displayed may be any
5 hardware device including hand-held devices, PDAs, cell phones, smart cards, Global
6 Positioning Systems, Point-of-Sale terminals, or any other form of hardware device which
7 involves computing in a generic form.
8

9 12. The method of claim 11 wherein the visual configuration system further
10 comprising accepting a signal which allows the user to specify constraints on the
11 hardware such as the size of the hard disk, the bandwidth of the network, etc.

12
13
14 13. The method of claim 12 wherein the method further comprising accepting a
15 signal which enables the user to specify a request for shared storage;
16 and allocating such storage to be accessible through any device in the
17 environment.

18
19 14. The method of claim 13 wherein the method further comprising accepting a
20 signal which enables the user to specify a request for private storage;
21 and allocating such storage to be accessible through specific devices in the
22 environment for specific users in the account.

23
24 15. The method of claim 14 wherein the method further comprising accepting a
25 signal which enables the user to request a copy a device configuration;
26 and making such a copy of the device configuration, saving it in storage;
27 and accepting a signal which enable the user to instantiate a device from a stored
28 configuration;
29 and instantiating such device from a stored configuration.

SYSTEM FOR CONFIGURATION OF DYNAMIC COMPUTING ENVIRONMENTS USING A VISUAL INTERFACE

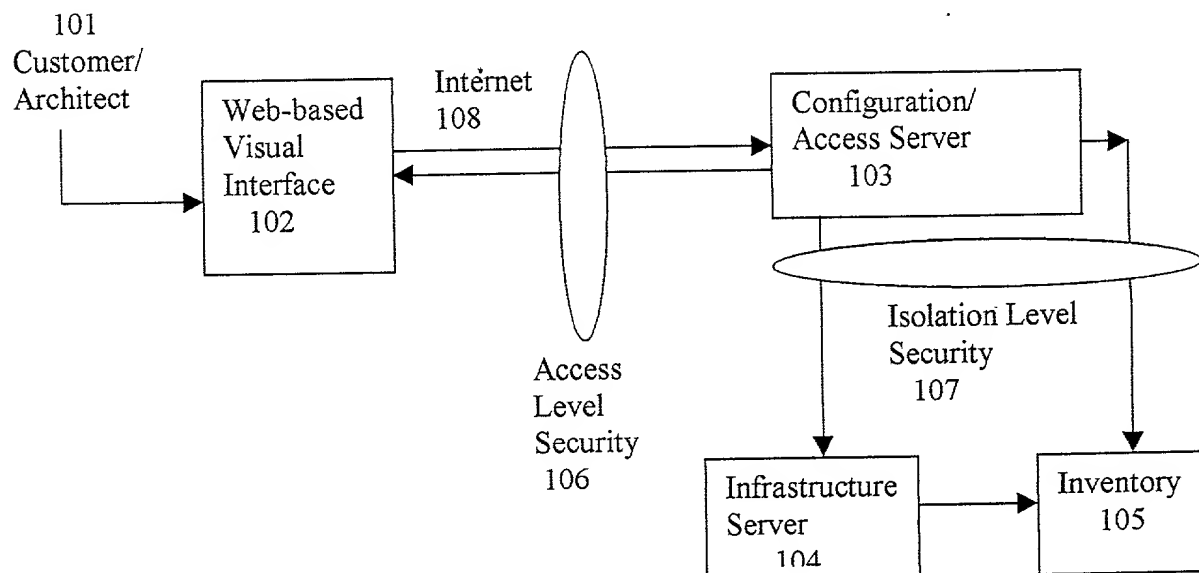
ABSTRACT OF THE DISCLOSURE

5 The present invention discloses a user interface for creating a dynamic
computing environment using allocateable resources. The interface enables the fast, efficient
selection and configuration of resources for the computing environment. The resources are
fully selectable and allocable by a system architect. In a first embodiment, a primary
company, Design2Deploy, Inc.® provides the ability for a customer or system architect to
10 design a system by allocating resources and specifying how the resources are to be used. The
system architect may create a computing environment from a remotely accessible user
interface such as a web page on the Internet. Thus, the system architect can create, modify
and operate the environment from anywhere in the world.

15 SF 1123371 v1

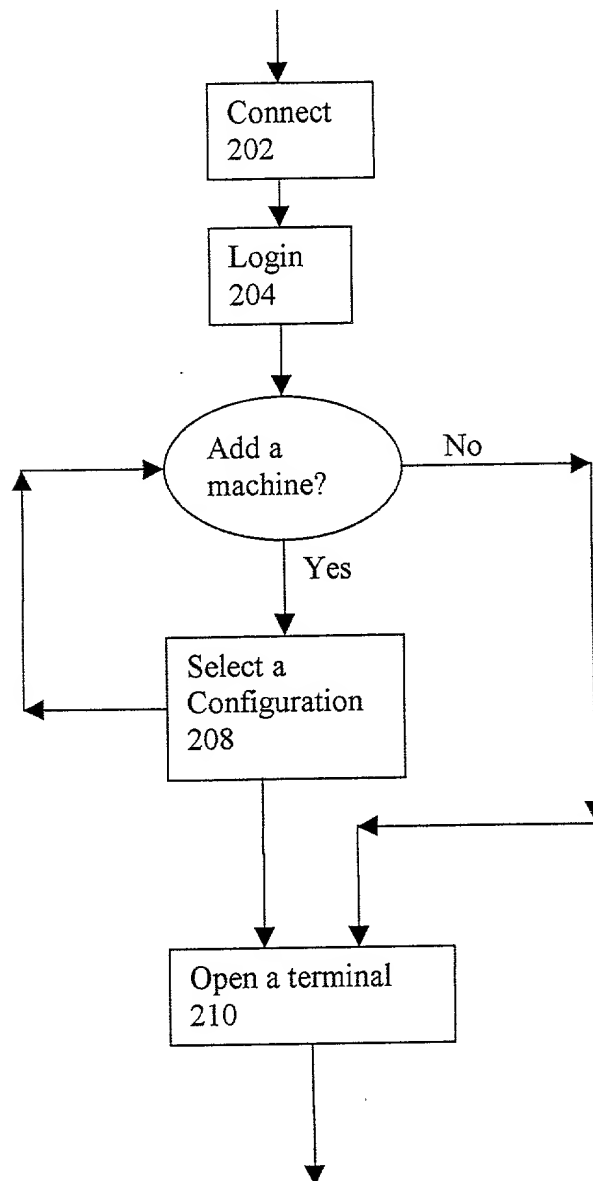
Fig. 1

Block Diagram depicting system 100 for configuration of a computing environment and allocation of resources for the environment.



005750-06529950

Fig 2. Flowchart depicting the process by which a customer allocates resources.



005150"00525950

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **SYSTEM FOR CONFIGURATION OF DYNAMIC COMPUTING ENVIRONMENTS USING A VISUAL INTERFACE** the specification of which X is attached hereto or _____ was filed on _____ as Application No. _____ and was amended on _____ (if applicable).

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56. I claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Country	Application No.	Date of Filing	Priority Claimed Under 35 USC 119

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

Application No.	Filing Date
60/228,105	August 24, 2000

I claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Date of Filing	Status

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Fidel D. Nwamu, Reg. No. 46,294
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I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 1

Sekaran Nanja

Date _____